National Health and Nutrition Examination Survey 2003-2004

Documentation, Codebook, and Frequencies

Varicella-Zoster Virus Antibody

Laboratory
Surplus Sera

Survey Years:
2003 to 2004

SAS Transport File:
SSVARI_C.XPT

First Release: March 2009

NHANES 1999-2004 Data Documentation

Laboratory Assessment: Varicella-zoster virus antibodies (Surplus Sera 1999 -2004)

First Published: March 2009 **Last Revised:** N/A

Component Description

Measurement of varicella-zoster virus antibodies from stored sera specimens.

Eligible Sample

Participants 6 - 19 years of age from NHANES 1999-2004 with stored sera. All specimens from subjects aged 6 – 19 years that initially tested (via whole-cell EIA test) positive (N=649) for varicella antibodies and a random selection of specimens that initially tested positive (N=300).

Description of Laboratory Methodology

Measurement of IgG antibody to varicella-zoster virus. The presence of IgG antibody to varicella-zoster virus (VZV) in the re-tested specimens was measured using an enzyme immunoassay (gp-ELISA) developed by the staff of the National VZV Laboratory at CDC. This method has been validated against a number of other laboratory-based VZV serologic methods and performs comparably to all of them (manuscript in preparation). Lentil-lectin-purified glycoprotein antigens derived from VZV-infected human fibroblast cells (obtained through CRADA with Merck & Co.) is coated on the wells of a 96-well microtiter plate, which is subsequently incubated with a diluted test specimen. Control (normal tissue) antigen (also obtained from Merck & Co.) is also prepared from uninfected fibroblasts and is plated separately into different wells and incubated with test serum to account for any nonspecific antibody reactivity. After unbound serum components are removed by washing, an antibody-enzyme conjugate, consisting of anti-human IgG antibody coupled to alkaline phosphatase, is added to wells and incubated. The conjugate binds only to human IgG antibodies that are in turn bound to the antigen coated on the plates. A colorimetric substrate for the enzyme is added to the wells and incubated for a sufficient time to permit color development, at which point the reaction is stopped chemically. The enzyme-substrate reaction results in a yellow-colored product that can be measured using a spectrophotometer set to a wavelength of 405 nm.

Raw data are transferred electronically from instrument readout files into a computerized spreadsheet. This spreadsheet is designed for the management of CDC National VZV Laboratory test results. It functions

within the Excel (Microsoft Corporation, Redmund, WA) software program. For VZV gp-ELISA test results, adjusted mean test optical density readings are recorded (average optical density from two normal tissue control wells, is subtracted from the average optical density from two test antigen wells). Positive test cut-offs were established empirically by analyzing operator and test variation of results from 16 serum specimens (8 positive, 8 negative) tested twice a day (two different operators) on three different days. Internal standards (strong positive, weak positive, negative) are run on each test plate.

Laboratory Quality Control and Monitoring

See description above.

Data Processing and Editing

Data was received after all the laboratory testing was complete. The data were not edited.

Data Access: All data are publicly available.

Analytic Notes

There are 2 variables:

Sequence Number

Varicella Antibody Test Result

1=positive
2=negative
3=equivocal

References

Weinmann S. Chun C, Mullooly JP, Reidlinger K, Houston H, Loparev VN, Schmid DS, Seward JF. Laboratory diagnosis and characteristics of breakthrough varicella in children. J Infect Dis 197: S132-8, 2008

Locator Fields

Title: Varicella-zoster virus antibodies (Surplus Sera 1999 -2004)

Contact Number: 1-866-441-NCHS

Years of Content: 1999-2004

First Published: March 2009

Last Revised: N/A

Access Constraints: None

Use Constraints: None

Geographic Coverage: National

Subject: Varicella-zoster virus antibodies (Surplus Sera 1999 -2004)

Record Source: NHANES 2003–2004

Survey Methodology: NHANES 2003–2004 is a stratified multistage probability sample of the civilian non-institutionalized population of the U.S.

Medium: NHANES Web site; SAS transport files

National Health and Nutrition Examination Survey
Codebook for Data Production (2003-2004)

Varicella-zoster virus antibodies (SSVARI_C)
Person Level Data

March 2009

SEQN	Target
	B(6 Yrs. to 19 Yrs.)
Hard Edits	**SAS Label**
	Respondent sequence number
English Text: Respondent sequence number.	
English Instructions:	

VARICELL	Target
	B(6 Yrs. to 19 Yrs.)
Hard Edits	**SAS Label**
	Varicella antibody
English Text: Varicella antibody	
English Instructions:	

Code or Value	Description	Count	Cumulative	Skip to Item
1	Yes	160	160	
2	No	119	279	
3	Equivocal	54	333	
.	Missing	0	333	